

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional)

5413P004

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Application Number

10/763691

Filed

2004-01-22

First Named Inventor

Fred P. Reinhard

Art Unit

1795

Examiner

Arun S. Phasge

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

☐ applicant/inventor.

/William W. Schaal/

☐ assignee of record of the entire interest.

See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)

William W. Schaal

Typed or printed name

☒ attorney or agent of record.

Registration number 39018

(714) 557-3800

Telephone number

☐ attorney or agent acting under 37 CFR 1.34.

Registration number if acting under 37 CFR 1.34 _____

September 25, 2009

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required.
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☐ *Total of _____ forms are submitted.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application. No. :	10/763,691	Confirmation No. 7684
Applicant :	Fred P. Reinhard	
Filed :	01/22/2004	
TC/A.U. :	1795	
Examiner :	Arun S. Phasge	
Docket No. :	5413P004	
Customer No. :	8791	

Commissioner for Patents
PO Box 1450
Alexandria VA 22313-1450

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Sir:

In response to the Final Office Action dated June 25, 2009, Applicant would like to request a pre-appeal panel review of the Final Office Action.

Claims 1-21 are pending in the present application. In the Final Office Action, the Examiner rejected claims 1-16 under 35 U.S.C. §103(a) as being unpatentable over Byszewski (U.S. Patent No. 5,352,345) and claims 17-21 under 35 U.S.C. §103(a) as being unpatentable over Byszewski in view of Boateng (U.S. Patent No. 5,225,054). Applicant respectfully traverses the rejection and submits that the Examiner has not met the burden of establishing a *prima facie* case of obviousness. There are several clear errors in the Examiner's rejection and arguments, discussed below. Applicant refers to the response filed on March 20, 2009.

1. Byszewski does not disclose “an impurity separation subsystem to remove a selected impurity from a feed water and to produce a reject solution with an elevated level of the selected impurity and an output solution... being the feed water having a substantially reduced level of the impurity” and “EMS subsystem to receive the reject solution from the impurity separation subsystem,” as recited in independent claim 1.

The Examiner alleges that the ion exchanger corresponds to the “impurity separation subsystem” and the electrodialectic water splitter 428 corresponds to “the EMS” (Office Action dated 01/11/2009, page 3; Final Office Action, page 2). Applicant respectfully disagrees.

a) The base depleted regenerant 422 cannot be the “reject solution”

In Figure 5, Byszewski merely discloses fresh anion exchange regenerant being introduced via line 400 into an exhausted anion exchange column 401. The exhausted regenerant

is removed via line 402 and the suspended solids are filtered out via filtration unit 403 and removed from the system via line 404. The filtered exhausted anion exchange regenerant is fed into the base purification unit 409 via line 408. An aqueous solution, preferably water or a base solution, is fed into the base purification compartment 409 via line 407. The recovered base is withdrawn from the base purification unit via line 410. The base depleted exhausted regenerant is removed from the base purification unit via line 412. A portion of the base depleted exhausted regenerant in line 412 is fed to a pH adjustment unit, 418. Makeup concentrated salt and HCl/NaOH are optionally added to the pH adjustment unit via lines 416 and 417, respectively, to maintain a pH of about 5 to about 6 so that the SiO_2 and Al_2O_3 will precipitate. Following pH adjustment in unit 418, the residual regenerant stream travels via line 419 to filtration unit, 420. Insoluble silicates are removed from the system via line 421. The base depleted regenerant is withdrawn from the silicate removal unit and fed into the salt compartment of the electro dialytic water splitter 428 via line 422 (Byszewski, col. 7, lines 20-62; Figure 5).

Accordingly, as illustrated in Figure 5, the base depleted regenerant 422 which is received by the electro dialytic water splitter 428, allegedly the EMS, is pretreated to remove impurities (Byszewski, col. 6, lines 8-10). The suspended solids are filtered out via filtration unit 403, and removed from the system via line 404 and insoluble silicates are filtered out via the filtration unit 420 and removed from the system via line 421. Thus, the electro dialytic water splitter 428 receives a base depleted regenerant 422 which already has impurities removed.

In contrast, claim 1 recites: “an impurity separation subsystem... to produce a reject solution with an elevated level of the selected impurity and an output solution... the EMS subsystem to receive the reject solution from the impurity separation subsystem...”

Assuming that the ion exchanger is the system in Figure 5 connected to the input of the electro dialytic water splitter 428, the ion exchanger produces a base depleted regenerant 422 which is received by the electro dialytic water splitter 428. Thus, given that the base depleted regenerant 422 already has impurities removed, the base depleted regenerant 422 cannot be a reject solution with an elevated level of the selected impurity. Accordingly, the ion exchanger fails to produce a reject solution with an elevated level of the selected impurity and the electro dialytic water splitter 428 fails to receive the reject solution. The ion exchanger and the electro dialytic water splitter 428 cannot be, respectively, the impurity separation subsystem and EMS, as recited in claim 1.

b) The base depleted regenerant 422 cannot be the “reject solution”

Applicant notes that the anions combine with hydrogen ions to form acid and that cations form base with hydroxide ions (Byszewski, col. 4, lines 5-13; Figure 1). However, even assuming that the anions and cations correspond to “selected impurities”, as recited in claim 1, the base depleted regenerant 422 does not include an elevated level of the selected impurity (i.e., cation) since, in the ion exchanger portion of Figure 5, “the filtered, exhausted anion exchange regenerant is fed into the base purification unit, 409, via line 408.... The recovered base is withdrawn from the base purification unit via line 410. The base depleted exhausted regenerant is removed from the base purification unit via line 412.” (Byszewski, col. 7, lines 27-33; Figure 5). *Emphasis Added.*

Accordingly, the based depleted regenerant that is produced by the ion exchanger and received by the electro-dialytic water splitter 428 is base depleted since the recovered based is withdrawn via line 410. Therefore, the base depleted exhausted regenerant 422 has a decreased level of the selected impurity, allegedly the cation, rather than an elevated level, as delineated in the claim. Hence, it appears that Byszewski teaches away from the claimed invention.

In the Final Office Action, the Examiner states that “the Board of Patent Appeals and Interferences... stated a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the structural limitations of the claimed. The device does not undergo a metamorphosis to a new apparatus merely by affixing instructions thereto on the use” (Final Office Action, page 2-3). Applicant respectfully submits this statement by the Board does not apply in the present case since the claimed apparatus in Byszewski fails to satisfy “the structural limitations of the claimed” as delineated herein. In other words, Byszewski fails to teach each of the elements as recited in the claims.

For instance, to conclude that the ion exchanger corresponds to impurity separation subsystem even if the ion exchanger produces a base depleted regenerant 422 which is pretreated to remove impurities which is not “a reject solution with an elevated level of the selected impurity” is to disregard the language of the claim itself.

As stated in MPEP §2173.05(g): “A functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used. A functional limitation is

often used in association with an element, ingredient, or step of a process to define a particular capability or purpose that is served by the recited element, ingredient or step.” See §2173.05(g).

Thus, given that the base depleted exhausted regenerant 422 cannot be the reject solution, the ion exchanger cannot correspond to the impurity separation subsystem that produces “a reject solution with an elevated level of the selected impurity,” as recited in claim 1

c) The recovered base 410 cannot be “the output solution”

As shown in Figure 5, the ion exchanger portion of the system produces the base depleted exhausted regenerant at line 412 and the recovered base at line 410 (Byszewski, col. 7, lines 27-33; Figure 5).

In contrast, the claim recites “an impurity separation subsystem to remove a selected impurity from a feed water and to produce a reject solution with an elevated level of the selected impurity and an output solution, the output solution being the feed water having a substantially reduced level of the impurity”. *Emphasis Added*. As discussed above, the Examiner alleges that base depleted exhausted regenerant 412. Accordingly, the Examiner must be alleging that the recovered base corresponds to the output solution. Applicant respectfully disagrees.

The base purification unit 409 receives an aqueous solution, preferably water or a base solution, and the recovered base 410 is withdrawn from the base purification unit. There is no teaching or suggestion that the recovered base is the aqueous solution having a substantially reduced level of impurity, allegedly cations. In fact, since the base purification unit 409 further receives the filtered exhausted anion exchange regenerant 408 and produces the base depleted exhausted regenerant 412, it is likely that the recovered base 410 includes the base that was depleted from the base depleted exhausted regenerant 412. Thus, the recovered base 410 cannot be the aqueous solution 407 having a substantially reduced level of impurity.

Moreover, based on the dependency of claims 2-12 on claim 1 believed by Applicant to be in condition for allowance, no further discussion as to the grounds for traverse is warranted.

2. Byszewski does not disclose “receive a brine solution... having an elevated level of at least one type of impurity” and “produce a resultant brine solution that may be reused for regeneration of an ion exchange resin,” as recited in independent claim 13 and “a brine solution having... an increased level of an impurity,” as recited in independent claim 17.

With respect to independent claim 13, as discussed above, the base depleted regenerant 422 is (1) pretreated to remove impurities and (2) even assuming that cations are impurities, is base depleted such that base depleted regenerant 422 cannot correspond to “the brine solution... having an elevated level of at least one type of impurity,” as delineated in claim 13.

Additionally, assuming that the base depleted regenerant 422 is the brine solution, Byszewski fails to teach or suggest to “produce a resultant brine solution that may be reused for regeneration of an ion exchange resin,” as recited in claim 13. Instead, electrodialytic water splitter, 428, allegedly the EMS, merely produces an electrodialytically depleted salt, and the recovered acid and base, which allegedly contain the impurities (cations and anions). Given that the base depleted regenerant 422 is assumed to be the brine solution, the electrodialytically depleted salt cannot be the resultant brine solution.

Further, electrodialytically depleted salt is either discarded, or treated to recover excess water (Byszewski, col. 8, lines 15-17; Fig. 5). Thus, electrodialytically depleted salt is not being “reused for regeneration of an ion exchange resin” such that it cannot be resultant brine solution.

Similarly, with respect to independent claim 17, Byszewski fails to teach “a brine solution having... an increased level of an impurity.” As discussed above, the base depleted regenerant 422 is (1) pretreated to remove impurities and (2) even assuming that cations are impurities, is base depleted such that base depleted regenerant 422 cannot correspond to the brine solution having an increased level of at least one type of impurity.

Based on the dependency of claims 14-16 and 18-21 on independent claims 13 and 17, respectively, believed by Applicant to be in condition for allowance, no further discussion as to the grounds for traverse is warranted.

Conclusion

Applicant respectfully requests the Review Panel render a decision allowing the rejected claims.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Dated: September 25, 2009

By / William W. Schaal

William W. Schaal

Reg. No. 39,018

Tel.: (714) 557-3800 (Pacific Coast)

1279 Oakmead Parkway
Sunnyvale, CA 94085-4040